which we owe to Dr. Goldthwaite and his pupils, marks a further step in the management of such suffering women. Dr. Bourne, in a reference to backache, states that this "is one of the chief complaints, but instead of conforming to what we should expect, it may, to our surprise, be worse on lying or sitting down." On the basis of this "capricious" behaviour Dr. Bourne would class this type of pain amongst the neuroses. In our experience these features are frequent in a readily recognizable and easily treated type of orthopaedic strain.—I am, etc.,

Edinburgh, March 28th. JAMES YOUNG.

## MOBILITY OF THE PELVIC JOINTS IN PREGNANCY

SIR,—May I be permitted to draw the attention of obstetricians to the report in the *Journal* of March 19th (p. 526) of Mr. R. Brooke's interesting remarks on backache in women?

Mr. Brooke, speaking from the orthopaedic point of view, refers to the variability in parturient women of the amount of stretch, and later of subinvolution, of the sacro-iliac ligaments. Obstetricians recognize that a large foetus may be successfully delivered from a small mother, and they realize that the foetal head in such cases is much moulded, but often they do not appreciate the part played by relaxation of the pelvic ligaments in achieving this result. If they did they would be more ready to seek to differentiate, before the commencement of labour, between those women whose ligaments are soft and those who have an unyielding pelvis, and in whom a Caesarean section may be the only means of saving the life of the child. The presence or absence of mobility in the pelvic joints can readily be demonstrated during the later months of pregnancy by palpating the lower border of the pubic joint, whilst the patient (in the upright position) rests her weight alternately on each foot. That attention to this mobility might appreciably reduce infant mortality and morbidity was proved in a fairly recent investigation of a series of mothers (*Journ. Obstet. and Gynaecol. British Empire*, 1930, xxxvii, No. 1).—I am, etc.,

E. JOYCE PARTRIDGE, F.R.C.S.

London, S.W.1, March 24th.

## FRACTURES OF THE SPINE

SIR,—Colonel Ellis's letter on the first-aid treatment of fractures of the spine (March 19th, p. 542) is of great interest and importance. The view which I very strongly hold is that no patient who has sustained a fracture or fracture-dislocation of the spine should ever be lifted from one situation to another unless he is first turned into the prone position and lifted face downwards.

Every surgeon who has used the method I have described will have been impressed by the ease with which simple hyperextension movement will reduce the most severe crushing injuries and dislocations. Similarly, the most simple forward flexion movement cannot do other than increase the displacement. We know that in many fractures of the spine the cord has been actually compressed but not crushed or severed, and that in such cases the paraplegia is capable of complete recovery. We now have records of many such cases. Since we know that displacement is so very easily influenced by movement, that the necessary range of movement is small, and that the position of the vertebrae can be very considerably altered without the patient complaining seriously of pain, and without him being able to prevent it by muscle spasm, it is clear that the risk of converting a recoverable paraplegia due to compression into an irrecoverable paraplegia due to crushing of the cord is a very real one.

Although there can be no doubt that a very serious risk is taken in lifting the patient in any position other than face down, there is comparatively no danger when the patient is recumbent on the stretcher. If by chance respiratory or cardiac embarrassment should then arise, it would be quite safe to turn or roll him on to one side. Personally, I have never seen such embarrassment, and in view of the frequency with which prolonged spinal operations are performed on anaesthetized patients in the prone position without respiratory or cardiac complications arising, I doubt very much whether there is any serious likelihood of such a complication, even in a shocked patient. Moreover, the prone position is quite safe in cases where, in addition to a fracture of the spine, there is injury to the ribs or pelvis. Dislocations of the symphysis pubis (and sacro-iliac joint) are most widely displaced when the patient lies on his back, the displacement being less when he lies on his face, and entirely reduced if he lies on his side. There would therefore be no increased risk of injury to the pelvic viscera.

The first-aid rules which in my opinion are sound, and which we have taught at the Liverpool Royal Infirmary and elsewhere, are as follows:

1. Place the stretcher alongside of the patient, and while the patient holds himself rigidly roll him on to the stretcher, taking care to roll him uniformly ("in one piece").

2. If this is impracticable, and the patient is lying in any position other than on his face, roll him on to his face, and then lift him face downwards on to the stretcher.

3. If respiratory distress should arise, raise one shoulder by means of a folded coat. If still not relieved the patient may be rolled on to one side. In most cases he will be comfortable on his face.

These rules should undoubtedly be applied in all cases where a back injury is associated with paralysis of the legs, and in my opinion they should be applied whenever there is a reasonable probability that the spine is fractured. The difficulties are greatly increased in mine accidents, where the only means of transportation is the confined space of a cage. Possibly H.M. Medical Inspector of Mines, who discussed these questions with me a year ago, could quote his experience of recent cases.—I am, etc.,

Liverpool, March 26th. R. WATSON JONES.

## COLPORRHAPHY AND PROLAPSE

SIR,—Professor W. Fletcher Shaw has asked, in the *Journal* of March 19th, for a detailed description of my modification of double colporrhaphy called "combined abdomino-perineal cystopexy"; this will be found in the appendix of the 1932 impression of *Recent Work on Prolapse*, referred to in my letter in the *Journal* of January 30th. There also will be found fuller details of the drawbacks of the older operation (as well as a new perineal technique for minimizing them). These drawbacks lessen the value of the statistics of the orthodox double colporrhaphy operation, and justify the submission of an abdominal modification which is free from them. While I am convinced of the superiority of the latter over the former, I did not intend to urge the adoption of the abdominal modification in all cases, but to limit its application to those types of cases (referred to in my letter in the *Journal* of March 5th) in which abdominal section is indicated. When the value of this operation has been confirmed by other gynaecologists it is not improbable that its application will be extended to other types of prolapse.—I am, etc.,

E. HESKETH ROBERTS, F.R.C.S.Ed.

London, W.1, March 22nd.